ORDER NO.SIMMC 0305020A3

Service Manual

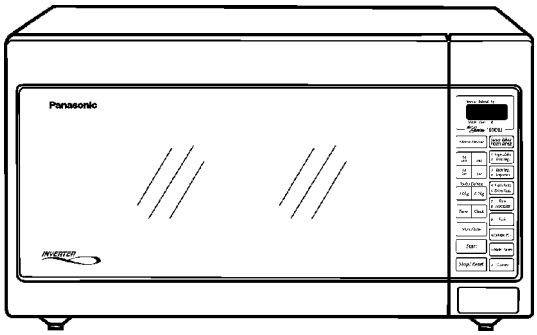
Microwave Oven

Simplified

NN-T793AF / NN-T783SF / NN-T703QF

QPQ(Australia & New Zealand)

Please file and use this manual together with the service manual for Model NN-S560WF (ORDER NO. SIMMC0006012C3)



SPECIFICATIONS

Specifications:

Specifications: / Models:	NN-T793AF	NN-T783SF	NN-T703QF
Power Source:	230V-240V AC Single Phase, 50Hz		
Power Requirement:	1040W	1040W	1040W
Output(IEC705-88):	1200W	1200W	1200W
Microwave Frequency:	2450MHz		
Timer:	30 min. /Stage (HIGH Power) - 5 Stage Maximum 99 min. 99 sec. /Stage (Other Power Levels) - 5 Stage Maximum		
Outside Dimensions:	555mm(W) X 493mm(D) X304mm(H)		
Oven Cavity Dimensions:	418mm(W) X 470mm(D) X 228mm(H)		
Weight:	14.5 kg		
PbF	This product with PbF		
Output power: IEC705-88 Test Procedure			
Specifications subject to change without notice.			

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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

WARNING

1. This product should be serviced only by trained, qualified personnel.
2. Check for radiation leakage before and after every servicing according to the "procedure for measuring radiation leakage."
3. If the unit cannot be repaired on site, advise the customer not to use until unit is repaired.
4. There are special components used in the microwave oven which are important for safety. These parts are marked with a ⚠ on the replacement parts list. It is essential that these critical parts be replaced only with the manufacture's specified parts to prevent microwave leakage, shock, fire, or other hazards. Do not modify the orginal design.

This service manual covers products for following markets.
When troubleshooting or replacing parts, please refer to the country identifications shown below for your applicable product specification.

QPQ ..... For Australia & New Zealand

CAUTION

About lead free solder (PbF)

Distinction of PbF PCB: PCBs (manufactured) using lead free solder will have a PbF stamp on the PCB.

Caution:
- Pb free solder has a higher melting point than standard solder; Typically the melting point is 30 - 40˚C higher. Please use a high temperature soldering iron. In case of the soldering iron with temperature control, please set it to 370 ± 10˚C.
- Pb free solder will tend to splash when heated too high (about 600˚C).

Panasonic®

DANGER OF HIGH VOLTAGE AND HIGH TEMPERATURE (HOT/LIVE) OF THE INVERTER POWER SUPPLY (U)

INVERTER WARNING

This Inverter board looks like a regular PCB. However, this PCB drives the magnetron tube with extremely high voltage and high current. NEW H.V.

IT HAS:

1. **Very high voltage and high current circuits.**
   It functions the same as the high voltage transformer and high voltage capacitor in ordinary microwave ovens.
2. **Aluminum heat sink is energized with very high voltages and high heat energy.**
3. **Very high voltage may remain in circuitry even when oven is off. High voltage charge may remain in the capacitors on the board.**

DO NOT:

* 1. **Do not touch circuitry because it has very hot (high voltage) circuitry. Even when replacing board, extreme care should be taken to avoid possible electric shock hazards. High voltage charge may remain in circuit.**

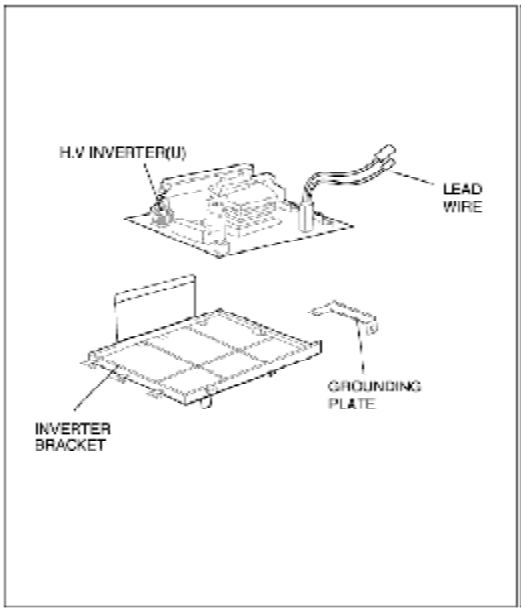
* 2. **Do not touch aluminum heat sink because it is energized with very high voltage and also is very hot in high heat energy.**

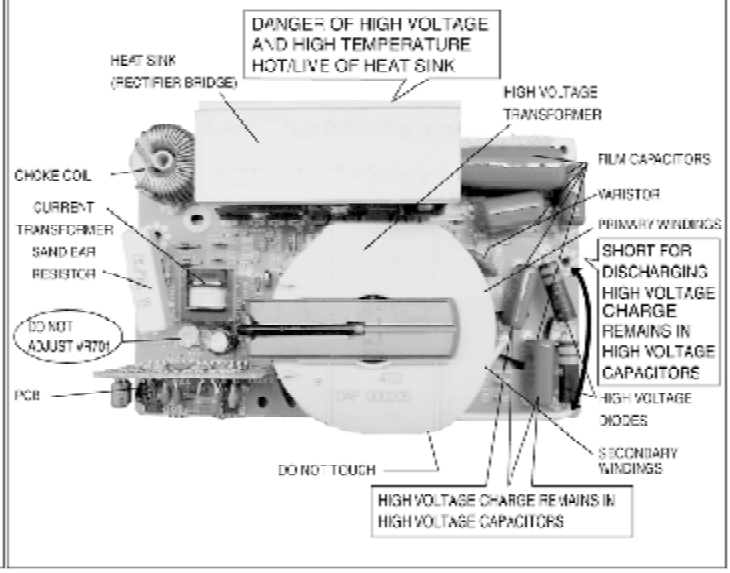
* 3. **Do not try to adjust or tamper with preset control on the Inverter board because it is very dangerous to adjust without proper test equipment.**

* 4. **Do not test oven while Inverter grounding plate or screws are loose. It is very dangerous to operate H.V. Inverter Circuit (U) with loose mounting screws or if improperly grounded.**

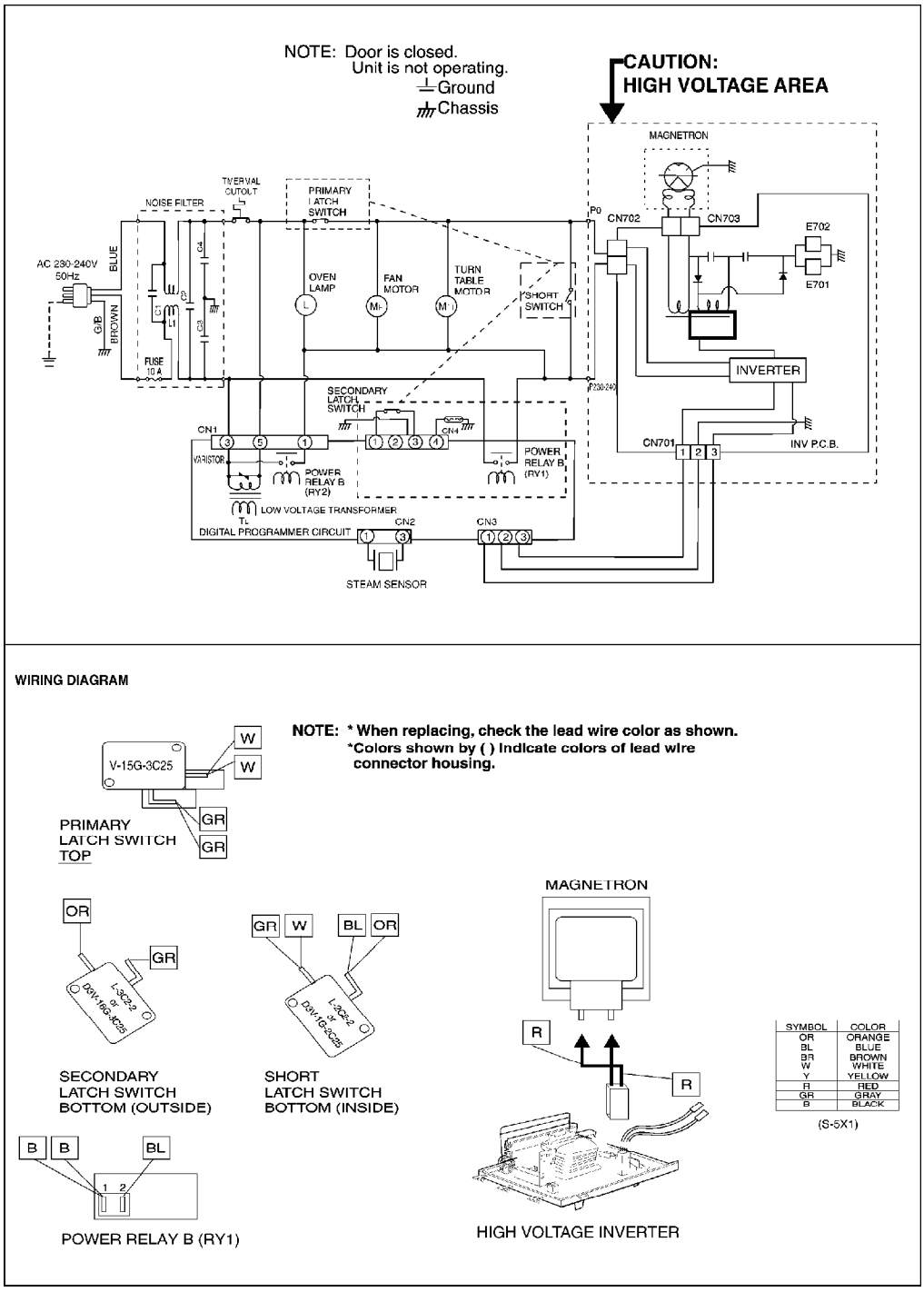
* 5. **Do not try to repair Inverter PCB because it is very dangerous to repair. Replace as a complete High Voltage Inverter Circuit unit.**

INVERTER POWER SUPPLY





1. SCHEMATIC DIAGRAM



2. CAUTIONS TO BE OBSERVED WHEN TROUBLESHOOTING

Unlike many other appliances, the microwave oven is a high voltage, high current device. It is

free from danger in ordinary use, though extreme care should be taken during repair.

Caution

Servicemen should remove their watches whenever working close to or replacing the magnetron.

2.1. Check the grounding

Do not operate on a two wire extension cord. The microwave oven is designed to be grounded when used. It is imperative, therefore, to ensure the appliance is properly grounded before beginning repair work.

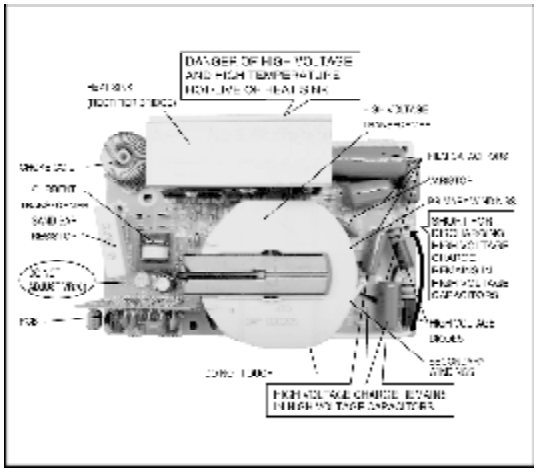
2.2. Inverter warnings

DANGER, HIGH VOLTAGE AND HIGH TEMPERATURE (HOT/LINE) OF THE INVERTER POWER SUPPLY (U)

This high voltage inverter power supply handles very high voltage and current for the magnetron tube. Though it is free from danger in ordinary use, extreme care should be taken during repair.

The aluminum heat sink is also energized with high voltage (HOT), so do not touch when the AC input terminals are energized. The power devices Collector is directly connected to the aluminum heat sink.

The aluminum heat sink may be HOT due to heat energy, therefore, extreme care should be taken during servicing.



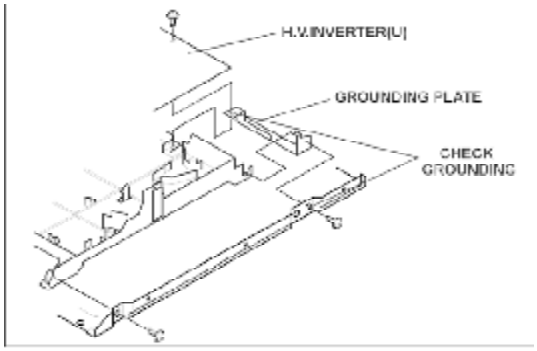
H.V. Inverter warning

WARNING FOR INVERTER POWER SUPPLY (U) GROUNDING

Check the high voltage inverter power supply circuit grounding.

The high voltage inverter power supply circuit board must have a proper chassis ground, the inverter grounding bracket must be connected to the chassis. If the inverter board is not grounded it will expose the user to very high voltages and cause extreme

DANGER! Be sure that the inverter circuit is properly grounded via the inverter earth bracket.

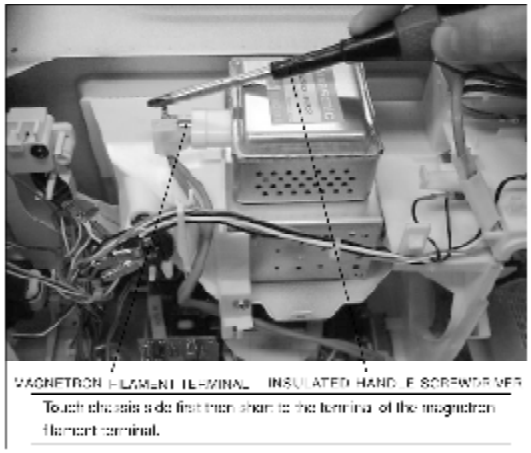


Grounding of the inverter circuit board

WARNING! DISCHARGE THE HIGH VOLATGE CAPACITORS

For about 30 seconds after the oven is turned off, an electric charge remains in the high voltage capacitors in the inverter power supply circuit board.

When replacing or checking parts, remove the power plug from the outlet and short the inverter output terminal of the magnetron filament terminals to the chassis ground with an insulated handle screwdriver to discharge. Please be sure to touch the chassis ground side first and then short to the output terminals.



Discharging the high voltage capacitors

WARNING

There is high voltage present with high current capabilities in the circuits of the primary and secondary windings, choke coil and heat sink of the inverter. It is extremely dangerous to work on or near these circuits with the oven energized. DO NOT measure the voltage in the high voltage circuit including the filament voltage of the magnetron.

WARNING

Never touch any circuit wiring with your hand or with an insulated tool during operation.

2.3. Part replacement.

When any part or component is to be replaced, always ensure that the power cord is removed from the wall outlet.

2.4. When the 10A fuse is blown due to the operation of the short switch:

WARNING

When the 10A 250V fuse is blown due to the operation of the interlock monitor switch, replace all of the components (primary latch switch, door switch, short switch and power relay B (RY1)).

1. **This is mandatory. Refer to “adjustments and measurements” for the location of these switches.**
2. **When replacing the fuse, confirm that it has the appropriate rating for these models.**
3. **When replacing faulty switches, be sure the mounting tabs are not bent, broken or deficient in their ability to hold the switches.**

2.5. Avoid inserting nails, wire etc. through any holes in the unit during operation.

Never insert a wire, nail or any other metal object through the lamp holes on the cavity or any holes or gaps, because such objects may work as an antenna and cause microwave leakage.

2.6. Confirm after repair

1. **After repair or replacement of parts, make sure that the screws of the oven, etc. are neither loose nor missing. Microwaves might leak if screws are not properly tightened.**
2. **Make sure that all electrical connections are tight before inserting the plug into the wall outlet.**
3. **Check for microwave energy leakage. (Refer to procedure for measuring microwave energy leakage).**

CAUTION MICROWAVE RADIATION

USE CAUTION NOT TO BECOME EXPOSED TO RADIATION FROM THE MICROWAVE MAGNETRON OR OTHER PARTS CONDUCTING MICROWAVE ENERGY

IMPORTANT NOTICE

The following components have potentials above 2000V while the appliance is operated.

- **Magnetron**
- **High voltage transformer (Located on inverter (U))**
- **High voltage diodes (Located on inverter (U))**
- **High voltage capacitors (Located on inverter (U))**

Pay special attention to these areas.

When the appliance is operated with the door hinges or magnetron fixed incorrectly, the microwave leakage can exceed more than 5mW/cm^2. After repair or exchange, it is very important to check if the magnetron and the door hinges are correctly installed.

2.7. Sharp edges

Caution

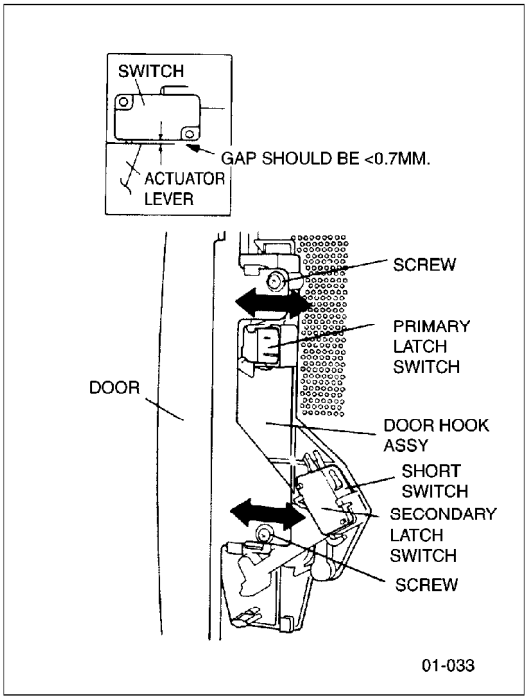
Please use caution when unpacking, installing or moving the unit, as some exposed edges may be sharp to the touch and cause injury if not handled with care.

3. MEASUREMENTS AND ADJUSTMENTS

3.1. Adjustment of primary latch switch, secondary latch switch and short switch.

1. **Mount the Primary latch switch, the secondary latch switch and the short switch to the door hook assembly as shown in ILL.**
   NOTE:
   No specific individual adjustment during installation of the Primary latch switch, secondary latch switch or short switch to the door hook are required.
2. **When mounting the door hook assembly to the oven assembly, adjust the door hook assembly by moving it in the direction of the arrows in the illustration, so that the oven door will not have any play in it. Check for play in the door by pulling the door assembly. Make sure that the latch keys move smoothly after adjustment is completed. Completely tighten the screws holding the door hook assembly to the oven assembly.**
3. **Reconnect the short switch and check the continuity of the monitor circuit and all latch switches again by following the**

component test procedures.



3.2. Measurement of microwave output

The output power of the magnetron can be determined by performing IEC standard test procedures. However,due to the complexity of IEC test procedures, it is recommended to test the magnetron using the simple method outlined below.

Necessary Equipment:

***1 liter beaker *Glass thermometer / *Wrist watch or stopwatch**

NOTE:

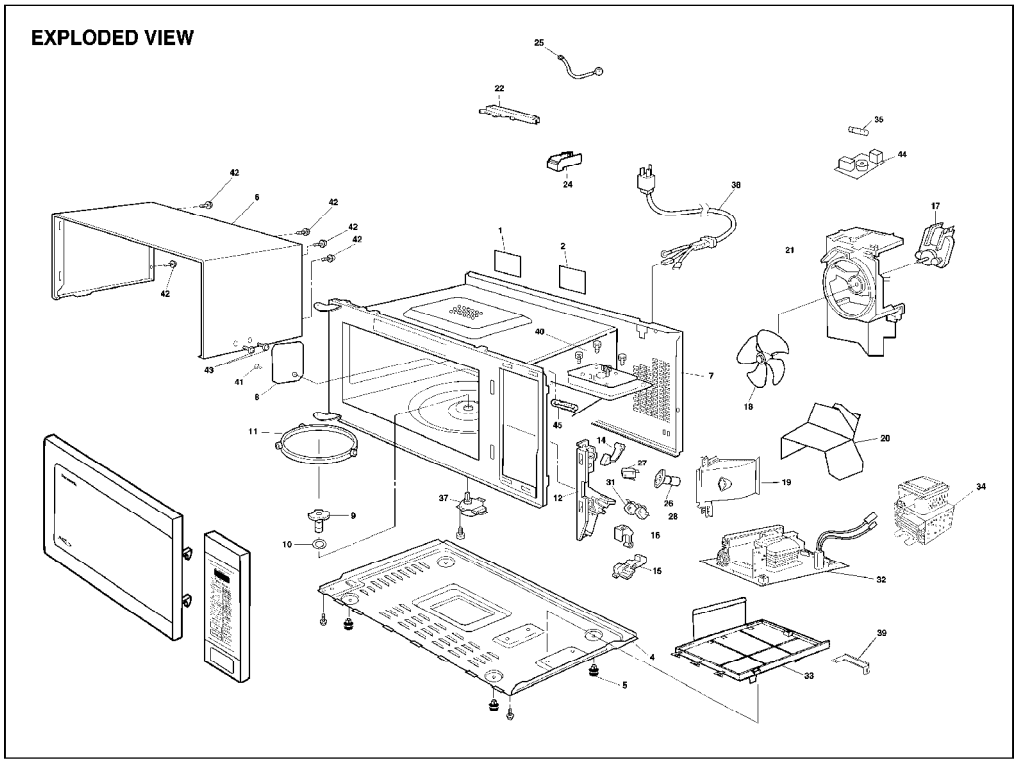
Check the line voltage under load.Low voltage will lower the magnetron output. Take the temperature readings and heating time as accurately as possible.

1. **Fill the beaker with exactly one liter of tap water.Stir the water using the thermometer and record the water's temperature. (recorded as T1).**
2. **Place the beaker on the center of glass tray. / Set the oven for High power and heat it for exactly one minute.**
3. **Stir the water again and read the temperature of the water. (recorded as T2).**
4. **The normal temperature rise at High power level for each model, is as shown in table.**

TABLE (1L-1min.test)

RATED OUTPUT	TEMPERATURE RISE
1200W(IEC705-88)	Min. 10.3°C

4. EXPLODED VIEW AND PARTS LIST



5. PARTS LIST

NOTE:

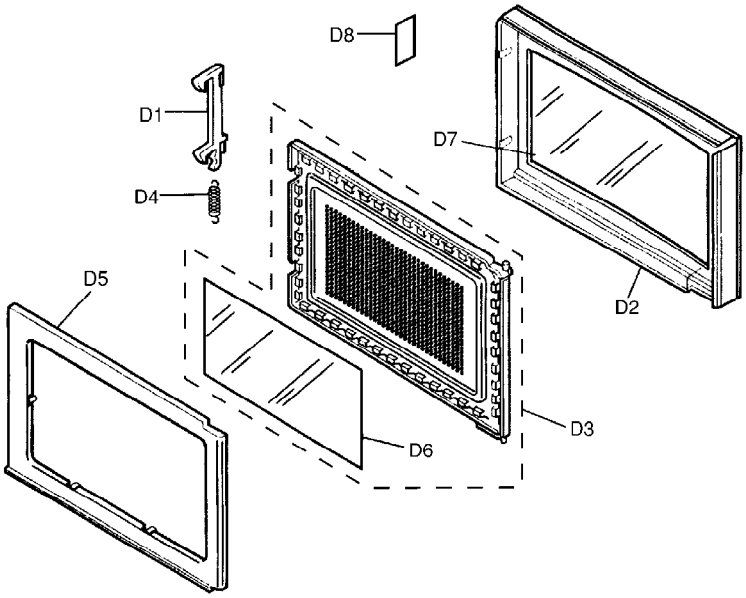
1. **When ordering replacement part(s), please use part number(s) shown in this part list.**
   Do not use description of the part.
2. **Important safety notice:**
   Components identified by mark have special characteristics important for safety.
   When replacing any of these components, use only manufacture's specified parts.

NOTE:

"A" parts are supplied by MOD (Japan)
"F" parts are supplied by SIMMC (China)

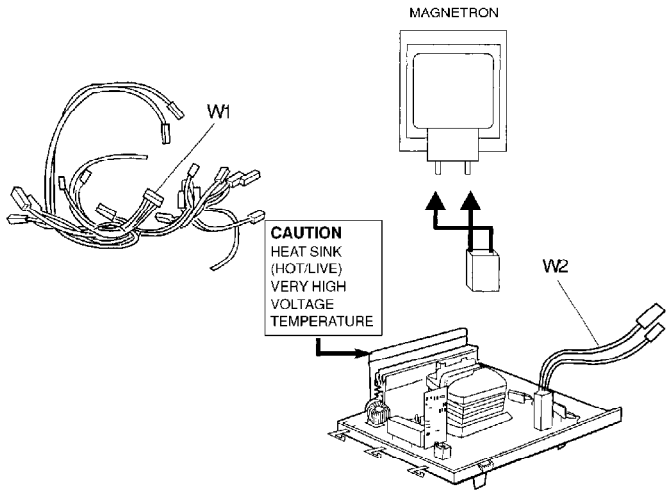
Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
1		F00068100HN	CAUTION LABEL	1	
2		F00075X10AQP	NAME PLATE	1	T793AF QPQ
2		F00075X10SQP	NAME PLATE	1	T783SF QPQ
2		F00075X10QQP	NAME PLATE	1	T703QF QPQ
4		F10014W00AP	BASE	1	
5		F10084T00AP	RUBBER FOOT	4	
6		F110D4W00BQP	CABINET BODY (U)	1	
7	⚠	F200A5X20AP	OVEN (U)	1	
8		F20555K00AP	COVER	1	
9		F21315Y00AP	PULLY SHAFT	1	
10		F2177-F80	WASHER	1	
11		F290D9330AP	ROLLER RING (U)	1	
12	⚠	F3020-1200	DOOR HOOK	1	
14		F3136-1200	HOOK LEVER A	1	
15		F31374650AP	HOOK LEVER B	1	
16		F31384650AP	HOOK LEVER C	1	
17		F400A4T10QP	FAN MOTOR	1	AC240V, SINGLE PHASE, 50Hz
18		F40084T00AP	FAN BLADE	1	
19		F40254W00AP	AIR GUIDE A	1	
20		F40264W00AP	AIR GUIDE B	1	
21		F41444W00AP	ORIFICE	1	
22		F64508660AP	SENSOR COVER B	1	
24		F65434W00AP	SENSOR COVER C	1	
25		A607S4M00AP	STEAM SENSOR	1	
26		F612E4J50XN	INCANDESCENT LAMP (U)	1	24V, 50Hz, 20W
27	⚠	J61424T00AP	MICRO SWITCH	1	(PRIMARY LATCH SWITCH) (V-16G-3C25)
28	⚠	F61415U30XN	MICRO SWITCH	1	(SECONDARY LATCH SWITCH) (KW3-0D-A (471))
31	⚠	F61785U30XN	MICRO SWITCH	1	(SHORT SWITCH) (KW3-0T-A (375))
32	⚠	F606Y4V00XN	H.V.INVERTER (U)	1	
33		F65854W00AP	INVERTER BRACKET A	1	
34	⚠	2M261-M32G	MAGNETRON	1	
35	⚠	A62304210BP	FUSE	1	10A/240V, 50Hz
37		F63265U30XN	TURNTABLE MOTOR	1	
38	⚠	F900C4W00QP	AC CORD W/PLUG	1	
39		F66624W00AP	GROUNDING PLATE	1	
40		XTWFA4+12T	SCREW	4	FOR MAGNETRON
41		F90804W00AP	CANOE CLIP	1	FOR COVER
42		XTWFA4+12D	SCREW	5	FOR CABINET BODY
43		XTTFA4+8BFZ	SCREW	2	FOR CABINET BODY SIDE
44		J692Y4T00QP	NOISE FILTER	1	

6. DOOR ASSEMBLY



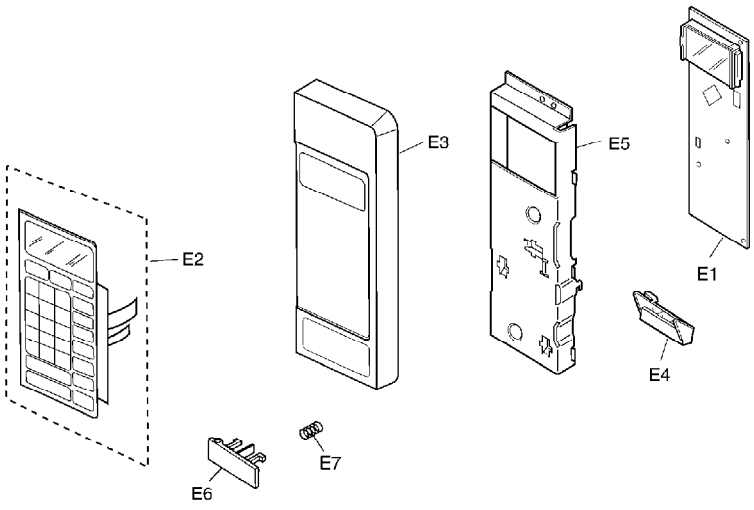
Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
D1		F3018-1200	DOOR KEY A	1	
D2	⚠	F302A5X10AAP	DOOR A (U)	1	T793AF QPQ
D2	⚠	F302A5X70SAP	DOOR A (U)	1	T783SF QPQ
D2	⚠	F302A5X10QAP	DOOR A (U)	1	T703QF QPQ
D3	⚠	F302K4W00AP	DOOR E (U)	1	
D4		F30215G10XN	DOOR KEY SPRING	1	
D5	⚠	F30854W00AP	DOOR C	1	
D6	⚠	F31454W00AP	DOOR SCREEN A	1	
D7		F31465X00SAP	DOOR SCREEN B	1	T793AF QPQ, T703QF QPQ
D7		F31465X70BAP	DOOR SCREEN B	1	T783SF QPQ
D8		F01729660JP	CAUTION LABEL B	1	

7. WIRING MATERIALS



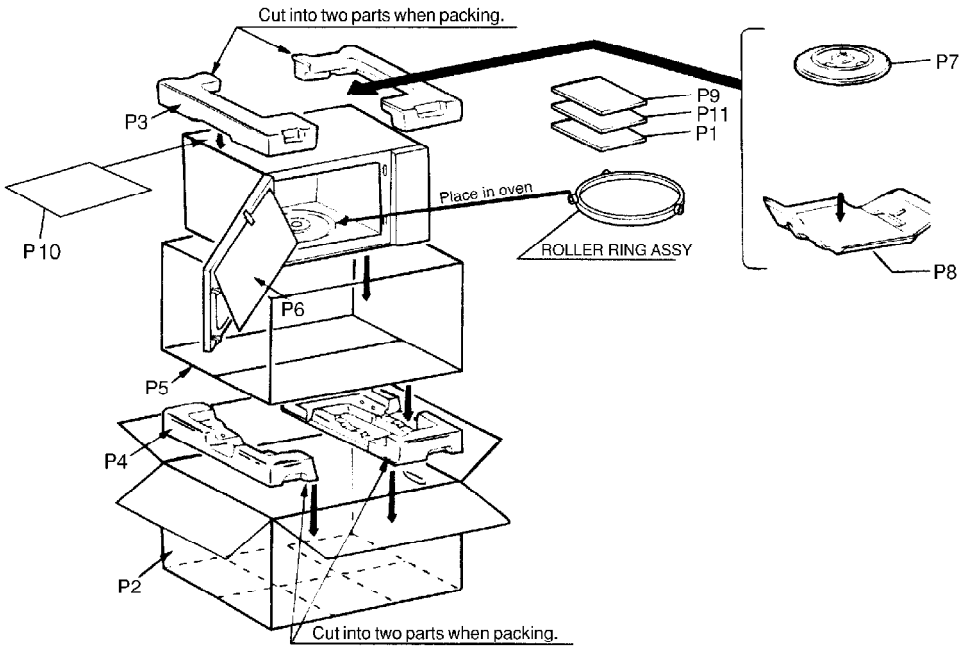
Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
W1		F030A5T50QP	LEAD WIRE HARNESS	1	
W2		F030E4W00CP	H.V.LEAD WIRE	1	

8. ESCUTCHEON BASE ASSEMBLY



Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
E1		F603L5X10QP	D.P.CIRCUIT (AU)	1	
E2		F630Y5X10SQP	MEMBRANE SWITCH (U)	1	T793AF QPQ, T703QF QPQ
E2		F630Y5X10BQP	MEMBRANE SWITCH (U)	1	T783SF QPQ
E3		F800L4W70AAP	CONTROL PANEL (AU)	1	T793AF QPQ
E3		F800L4W70BAP	CONTROL PANEL (AU)	1	T783SF QPQ
E3		F800L4W70QAP	CONTROL PANEL (AU)	1	T703QF QPQ
E4		F82564W00AP	DOOR OPENING LEVEL	1	
E5		F81274W70AP	BACK PANEL	1	
E6		F807254W70AAP	DOOR OPENING BUTTON	1	T793AF QPQ
E6		F807254W70SAP	DOOR OPENING BUTTON	1	T783SF QPQ
E6		F807254W70QAP	DOOR OPENING BUTTON	1	T703QF QPQ
E7		F80375K00AP	COOK BUTTON SPRING	1	

9. PACKING AND ACCESORIES



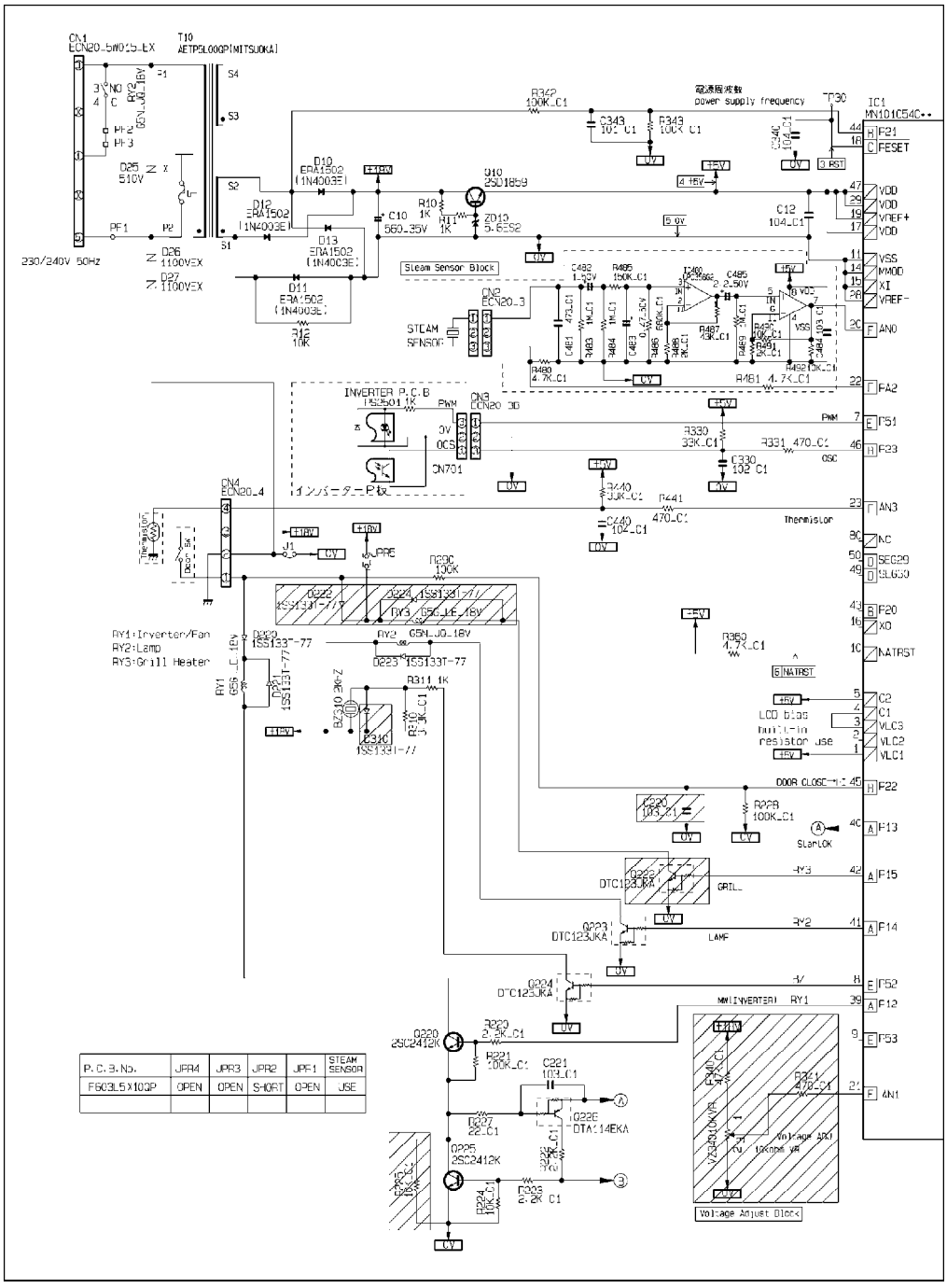
Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
P1		F00035X10QP	INSTRUCTION MANUAL	1	
P2		F01025X10AQP	PACKING CASE, PAPER	1	T793AF QPQ
P2		F01025X10SQP	PACKING CASE, PAPER	1	T783SF QPQ
P2		F01025X10QQP	PACKING CASE, PAPER	1	T703QF QPQ
P3		F01044W00AP	UPPER FILLER	1	
P4		F01054W00AP	LOWER FILLER	1	
P5		F01064W00AP	P.E.BAG	1	
P6		F01074W00AP	DOOR SHEET	1	
P7		B06014W00AP	COOKING TRAY	1	
P8		F01084W00AP	TRAY PACKING	1	
P9		F00065G40AP	CAUTION LABEL	1	
P10		F01924T00AP	SHEET	1	
P11		F00065T50QP	CAUTION LABEL	1	

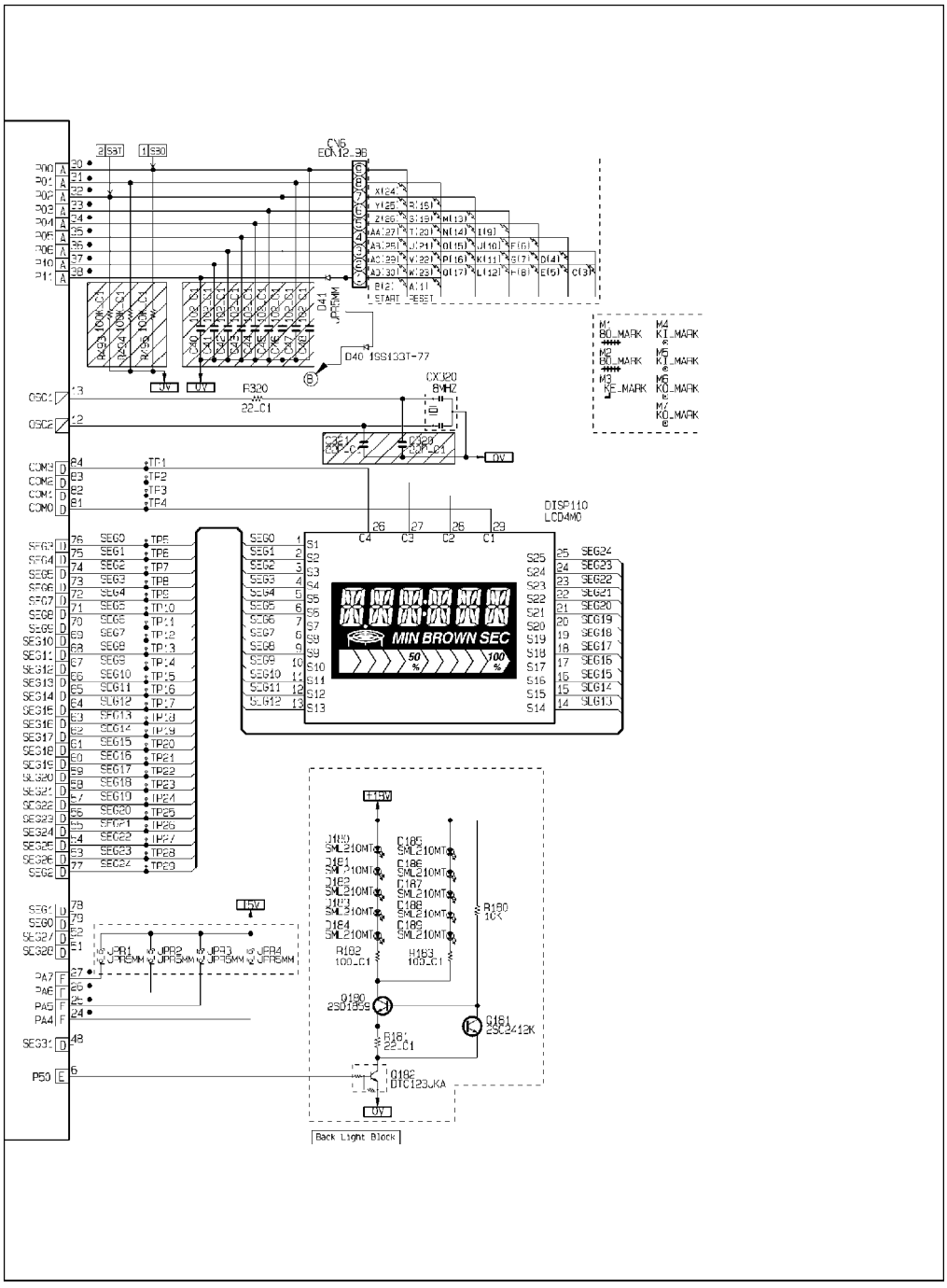
INVERTER BOARD PARTS LIST (F606Y4V00XN)

Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
C701		AECQ2G104JC1	CAPACITOR	1	0.1 μF , 500VDC
C702		ECQE2405T847	CAPACITOR	1	4 μF , 250VDC
C703		AECQ2H454JC3	CAPACITOR	1	0.45 μF , 500VDC
C704 , C705		ECWH30822JUA	CAPACITOR	2	8200PF, 3000VDC
CN701		AEEMXH00703G	CONNECTOR	1	
D701 , D702	⚠	A62024V00GP	DIODE SI	2	0.3A
D703		AESSRCT1H7-E	DIODE SI	1	
D704, D705		AESSRCT1A6-E	DIODE SI	2	
D706		AESS133T-77	DIODE SI	1	MA196, 0.1A
DB701		AESTRS2006M	DIODE SI	1	20A, 600V
		XTWA3+12B	SCREW	2	3*12 (FOR DB701, Q701)
		XTNA3+12B	SCREW	1	3*12 (FOR Q702)
H.S.		F66914V00XN	HEAT SINK	1	
IC702 , IC703		AEICP25011HL	IC	2	
IC801		AN9DB07SB-E1	IC	1	
L701		F50204V00XN	CHOKE COIL	1	
Q701		A691E4V10GP	TRANSISTOR SI	1	
Q702			TRANSISTOR SI	1	
C806			CAPACITOR	1	56PF TRANSISTOR(Q701, Q702) KIT
Q703, Q704		2SC2785TFK	TRANSISTOR SI	2	
Q705		2SA1175TFK	TRANSISTOR SI	1	
R715		AERGRY15J452	RESISTOR	1	4.5K Ω , 15W
VR701		AEVTZ6TLT102	VARIABLE RESISTOR	1	1K Ω , 30%
ZD701, ZD703, ZD704, ZD705		AESZMTZJ10B	ZENER DIODE SI	4	
ZD702		AESZMTZJ12C	ZENER DIODE SI	1	
T701		F609A4V00XN	H.V. TRANSFORMER	1	PBF
CT701		F66904V00XN	CURRENT TRANSFORMER	1	

10. DIGITAL PROGRAMMER CIRCUIT

SCHEMATIC DIAGRAM





11. DIGITAL PROGRAMMER CIRCUIT

PARTS LIST

Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
BZ310		AEFBAT2001	BUZZER	1	2.0KHz
C221, C484		AECUU06F103Z	CHIP CAPACITOR	2	0.01 μF/50V
C343		AECUU06C101J	CHIP CAPACITOR	1	100PF/50V
C12, C222, C340, C440		AECUT06F104Z	CHIP CAPACITOR	4	0.1 μF/25V
C330		AECUU06R102K	CHIP CAPACITOR	1	1000PF/50V
C481		AECUU06F473Z	CHIP CAPACITOR	1	0.047 μF/50V
C10		AECETK1V561B	AL CHEM CAPACITOR	1	560 μF/35V
C482		AECETS1H010B	AL CHEM CAPACITOR	1	1 μF/50V
C483		AECETS1HR47B	AL CHEM CAPACITOR	1	0.47 μF/50V
C485		AECETS1H2R2B	AL CHEM CAPACITOR	1	2.2 μF/50V
CN1		AEEMXH01505W	CONNECTOR	1	5 Pin
CN2		AEEMMF00703W	CONNECTOR	1	3 Pin
CN3		F03524U50AP	CONNECTOR	1	3 Pin
CN4		AEEMXH00F04W	CONNECTOR	1	4 Pin
CN6		AEEM09FDZBTM	CONNECTOR	1	9 Pin
CX320		AEFOS800MG06	CERAMIC RESONATOR	1	8.0MHz
DISP110		AEDDHJ4M00AP	LCD	1	
DISP1 HOLDER		F66175E40XN	LCD HOLDER	1	
		F67525E40XN	DIFFUSION SHEET	1	
D10-D13		AESSRCT1A6-E	DIODE	4	
D40, D220, D221, D223		AESS133T-77	DIODE	4	
D25		AERZ511KD10A	VARISTOR	1	
D26, D27		AERZ102KD10A	VARISTOR	2	
D180-D189		AESQPY1112H	CHIP-LED	10	
IC1		MN101C54CFA	L.S.I	1	
IC480		AEICUPC358G2	IC	1	
Q226		AESA14EKE	CHIP DIGI-TRANSISTOR	1	
Q182, Q223, Q224		AESC23JKE	CHIP DIGI-TRANSISTOR	3	
Q10, Q180		2SD1859TV2Q	TRANSISTOR	2	
Q181, Q220, Q225		2SC2412KT146	CHIP TRANSISTOR	3	
R182, R183		AERJ06J101R	CHIP RESISTOR	2	100 Ω, 1/16W, 5%
R224, R490, R492		AERJ06J103R	CHIP RESISTOR	3	10K, 1/16W, 5%
R221, R228, R342, R343		AERJ06J104R	CHIP RESISTOR	4	100K, 1/16W, 5%
R483, R484, R489		AERJ06J105R	CHIP RESISTOR	3	1M, 1/16W, 5%
R485		AERJ06J154R	CHIP RESISTOR	1	150K, 1/16W, 5%
R488, R491		AERJ06J202R	CHIP RESISTOR	2	2K, 1/16W, 5%
R181, R227, R320		AERJ06J220R	CHIP RESISTOR	3	22 Ω, 1/16W, 5%
R220, R222, R223		AERJ06J222R	CHIP RESISTOR	3	2.2K, 1/16W, 5%
R310		AERJ06J332R	CHIP RESISTOR	1	3.3K, 1/16W, 5%
R330, R440		AERJ06J333R	CHIP RESISTOR	2	33K, 1/16W, 5%
R487		AERJ06J433R	CHIP RESISTOR	1	43K, 1/16W, 5%
R331, R441		AERJ06J471R	CHIP RESISTOR	2	470 Ω, 1/16W, 5%
R360, R480, R481		AERJ06J472R	CHIP RESISTOR	3	4.7K, 1/16W, 5%
R486		AERJ06J684R	CHIP RESISTOR	1	680K, 1/16W, 5%
R10, R11, R311		AERDY2TJ102T	CARBON RESISTOR	3	1K, 1/4W, 5%
R12, R180		AERDY2TJ103T	CARBON RESISTOR	2	10K, 1/4W, 5%
R290		AERDY2TJ104T	CARBON RESISTOR	1	100K, 1/4W, 5%
RY1		AEGG5G1A18	POWER RELAY	1	
RY2		AEBJQ1A18	POWER RELAY	1	
T10		AETP5L00QP	LOW VOLTAGE TRANSFORMER	1	

Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
ZD10		AESZMTZJ5R6B	ZENER DIODE	1	